

(19)



Europäisches Patentamt

European Patent Office

Office européen des brevets



(11)

**EP 0 881 258 A3**

(12)

**EUROPEAN PATENT APPLICATION**

(88) Date of publication A3:  
25.08.1999 Bulletin 1999/34

(43) Date of publication A2:  
02.12.1998 Bulletin 1998/49

(21) Application number: 98115439.6

(22) Date of filing: 08.07.1994

(51) Int. Cl.<sup>6</sup>: C08L 23/02, C08L 23/10,  
C08L 23/16, C08L 53/02,  
B32B 27/08

(84) Designated Contracting States:  
DE FR GB IT NL

(30) Priority: 08.07.1993 JP 16886693  
08.07.1993 JP 16886793  
26.08.1993 JP 21185193  
29.09.1993 JP 24253593  
27.04.1994 JP 9007894

(62) Document number(s) of the earlier application(s) in  
accordance with Art. 76 EPC:  
94305053.4 / 0 634 453

(71) Applicant:  
Mitsui Chemicals, Inc.  
Tokyo 100 (JP)

(72) Inventors:

- Itoh, Yuichi  
Ichihara-shi, Chiba, 299-01 (JP)
- Kobayashi, Kyoko  
Ichihara-shi, Chiba, 299-01 (JP)
- Uchiyama, Akira  
Ichihara-shi, Chiba, 299-01 (JP)
- Takehara, Toru  
Ichihara-shi, Chiba, 299-01 (JP)

(74) Representative:

Cresswell, Thomas Anthony  
J.A. KEMP & CO.  
14 South Square  
Gray's Inn  
London WC1R 5LX (GB)

(54) **Olefin thermoplastic elastomer and laminate thereof**

(57) Olefin thermoplastic elastomers which comprise a partially crosslinked thermoplastic elastomer comprising a crystalline polyolefin resin (A), a block copolymer (B) which is composed of a polymer block of styrene or its derivative and a specific isoprene polymer block, and an olefin rubber (C), and thermoplastic elastomer laminates, having a substrate formed from a specific olefin thermoplastic elastomer or a crystalline polyolefin resin and a skin layer formed from the above-mentioned olefin thermoplastic elastomer, which are excellent in mechanical strength, heat resistance, heat aging resistance, weathering resistance and scratch resistance have been provided by the present invention.

**EP 0 881 258 A3**



European Patent  
Office

# EUROPEAN SEARCH REPORT

Application Number  
EP 98 11 5439

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
P,X	GB 2 270 915 A (UBE IND. LTD.) 30 March 1994 * page 1, line 6 - line 7 * * page 8, line 3 - line 5 * * page 9, line 6 - line 10; claims *	1	C08L23/02 C08L23/10 C08L23/16 C08L53/02 B32B27/08
Y	EP 0 323 741 A (SUMITOMO CHEMICAL COMP. LTD.) 12 July 1989 * page 3, line 48 * * page 5, line 7; claims *	1-10	
Y	US 4 340 684 A (THE FIRESTONE TIRE & RUBBER COMP.) 20 July 1982 * column 2, line 50 - column 3, line 15 * * column 4, line 60 - line 68; claims * * column 7, line 3 - line 40; table 1 *	1-10	
A	EP 0 409 580 A (JAPAN SYNTHETIC RUBBER CO.) 23 January 1991 * claims *	11-14	
A	DATABASE WPI Section Ch, Week 8812 Derwent Publications Ltd., London, GB; Class A94, AN 88-081178 XP002107942 & JP 63 034138 A (SHIN KOBE ELECTRIC MACHINERY), 13 February 1988 * abstract *	15-21	TECHNICAL FIELDS SEARCHED (Int.Cl.6)  C08L B32B
X	US 3 424 649 A (SHELL OIL COMPANY) 28 January 1969	22	
A	* claims *	23-28	
The present search report has been drawn up for all claims			
Place of search <b>THE HAGUE</b>		Date of completion of the search <b>1 July 1999</b>	Examiner <b>Clemente Garcia, R</b>
<p><b>CATEGORY OF CITED DOCUMENTS</b></p> <p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p> <p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons &amp; : member of the same patent family, corresponding document</p>			

EPO FORM 1503 03/92 (P4/C01)

ANNEX TO THE EUROPEAN SEARCH REPORT  
ON EUROPEAN PATENT APPLICATION NO.

EP 98 11 5439

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on  
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

01-07-1999

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
GB 2270915 A	30-03-1994	JP 6093143 A	05-04-1994
EP 0323741 A	12-07-1989	JP 1168753 A	04-07-1989
		JP 2050034 C	10-05-1996
		JP 7078155 B	23-08-1995
		CA 1327662 A	08-03-1994
		DE 3883509 D	30-09-1993
		DE 3883509 T	16-12-1993
		US 5260366 A	09-11-1993
US 4340684 A	20-07-1982	US 4250273 A	10-02-1981
		US 4419469 A	06-12-1983
		US 4343918 A	10-08-1982
		US 4350795 A	21-09-1982
		AU 520136 B	14-01-1982
		AU 3684778 A	13-12-1979
		BE 867934 A	08-12-1978
		CA 1147886 A	07-06-1983
		DE 2825697 A	21-12-1978
		FR 2394576 A	12-01-1979
		GB 2007682 A	23-05-1979
		JP 1352083 C	11-12-1986
		JP 54004943 A	16-01-1979
		JP 61015093 B	22-04-1986
		NL 7806240 A,B,	15-12-1978
		SE 443147 B	17-02-1986
		SE 7806346 A	14-12-1981
		US 4197377 A	08-04-1980
EP 0409580 A	23-01-1991	JP 2697173 B	14-01-1998
		JP 3074409 A	29-03-1991
		DE 69019079 D	08-06-1995
		DE 69019079 T	05-10-1995
		JP 3128957 A	31-05-1991
		US 5216074 A	01-06-1993
US 3424649 A	28-01-1969	BE 687235 A	22-03-1967
		DE 1301507 B	
		FR 1493400 A	07-12-1967
		GB 1149170 A	
		JP 49020387 B	24-05-1974
		NL 6613392 A,B	28-03-1967
		US 3459832 A	05-08-1969
		US 3562356 A	09-02-1971

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82